No Further Accelerated Action Justification for Polychlorinated Biphenyl (PCB) Potential Areas of Concern (PAC) Sites

(as proposed in 1996 HRR)

PAC 300-708	PAC 300-709
PAC 500-900	PAC 500-901
PAC 500-902	PAC 500-905
PAC 600-1000	PAC 600-1002
PAC 600-1003	PAC 700-1102
PAC 700-1103	PAC 700-1104
PAC 700-1111	PAC 700-1112
PAC 800-1207	PAC 800-1208
PAC 800-1209	PAC 900-1306

Rock Flats Environmental Technology Site

April 15, 2004

1/39

PAC REFERENCE NUMBER: 300-708

IHSS Reference Number: Not Applicable

Unit Name: Transformers North of Building 371

Approximate Location: N750,500; E2,082,500

Date(s) of Operation or Occurrence:

Prior to August, 1991

Description of Operation or Occurrence

The following six transformers are located north of Building 371: 371-1, 371-2, 371-3, 371-4, 371-5, and 371-6. Transformers 371-7 and 371-8, located in Room 3581 of Building 371, are also included in this PAC, not to imply that they have leaked, but to provide additional information only. It was noted in one reference that an area outside of Room 3581 had the potential to be contaminated with PCBs due to a transformer spill or fire (DOE, 1992).

At the time the Historical Release Report was written, transformer 371-1 had staining on the pad beneath the drain valve, indicating leakage. The transformers are all located within a rock-filled berm.

Physical/Chemical Description of Constituents Released

The following shows PCB analytical results for 1985 and 1992 transformer oils (DOE, 1992):

Transformer #	1985 Results	1992 Results
371-1	2,244 ppm	20 ppm
371-2	20 ppm	19 ppm
371-3	58 ppm	4 ppm
371-4	1,799 ppm	18 ppm
371-5	952 ppm	12 ppm
371-6	1,026 ppm	13 ppm

Response to Operation or Occurrence

During a sitewide sampling program in August 1991, soil samples were collected in accordance with approved EPA sampling protocol and analyzed for PCBs using Clor-N-Soil PCB Screening Kits, which are based on a 50 ppm PCB standard. These analytical results indicated that three out of 20 samples indicated PCB levels >50 ppm.

In 1995, under the approved *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls* (PAM) (DOE, 1995), approximately 300 soil screening samples were collected to determine the presence or absence of PCB contamination in the soil and to

determine the lateral and vertical extent of PCB migration. Soil samples were analyzed using EPA Method 4020 and concrete samples were analyzed using EPA Method 8080.

In accordance with the PAM (DOE, 1995), approximately 2 cubic yards of PCB-contaminated soil were excavated on the north side of Transformer 371-2, containerized, and shipped to an EPA licensed TSCA landfill in Kettleman, California for disposal.

Fate of Constituents Released to Environment

No historical documentation was found which detailed the fate of constituents released to the environment.

Action/No Action Recommendation

Based on the 1995 final cleanup analytical results, PCB concentrations in the soil were less than 10 ppm using EPA Method 4020, and were below detection levels using EPA Method 8080. Split samples were analyzed using EPA Method 8080 to provide confirmation of the EPA Method 4020 (Immunoassay Field Technique) analytical results. PCB results for the concrete samples were less than 1.3 ppm. Thus, the 25 ppm PCB cleanup level (DOE, 1995) has been achieved at this PAC and no further action is warranted.

Comments

In accordance with the PAM (DOE, 1995), a project completion report will be prepared and submitted in 1996 to document field activities and analytical results.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

PAC REFERENCE NUMBER(S): 300-709

IHSS Reference Number: Not Applicable

Unit Name: Transformer Leak - 334-1

Approximate Location: N749,500; E2,082,500

Date(s) of Operation or Occurrence

1975 to 1986

Description of Operation or Occurrence

Transformer 334-1 is located on a concrete pad and surrounded by a concrete berm adjacent to the northwest side of Building 334. Plant utility records indicate the transformer has had several previous locations. This 500 KVA transformer was manufactured in 1975 (DOE, 1992).

Physical/Chemical Description of Constituents Released

As presented in the *Historical Release Report for the Rocky Flats Plant* (DOE, 1992), in June 1986, Transformer 334-1, which contained 285 gallons of dielectric fluid, was reported as leaking. The transformer contained mineral oil with 772 ppm PCBs prior to being retrofilled in 1986.

Response to Operation or Occurrence

The dielectric fluid in Transformer 334-1 was flushed in 1986 (DOE, 1992).

During a sitewide sampling program in August 1991, soil samples were collected at this location in accordance with approved EPA sampling protocol and analyzed for PCBs using EPA Method 8080.

Fate of Constituents Released to Environment

No documentation was found that detailed the fate of constituents.

Action/No Action Recommendation

This PAC does not warrant further investigation based on the 1991 analytical data. All 1991 analytical results for PCBs were below 200 ppb, which is well below the 25 ppm (or 25,000 ppb) PCB cleanup level set for RFETS (DOE, 1995).

Comments

None.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

PAC REFERENCE NUMBER: 500-900

IHSS Reference Number: Not Applicable

Unit Name: Transformer Leak - 515/516

Approximate Location: N750,500; E2,083,000

Date(s) of Operation or Occurrence:

Prior to January, 1986

Description of Operation or Occurrence

Transformers 515 and 516 are located within the protected area west of Building 566 (the new laundry). Transformer 515 rests on the north side of a switchgear building and Transformer 516 is located on the south side of the same building. As presented in the *Historical Release Report for the Rocky Flats Plant* (DOE, 1992), an EPA inspection in January 1986, identified one of the transformers at the 515/516 Substation to be leaking PCB-contaminated oil from a valve to the underlying soil. A leak at the 515/516 Substation was included in a June, 1986, penalty calculation for PCB violations. It is believed that the referenced leak occurred on the east side of Transformer 516. In September, 1986, Transformers 515 and 516 were again reported as leaking. A photograph dated September 1986, shows that staining is visible on the concrete pad beneath the Transformer 516 drain valve.

Physical/Chemical Description of Constituents Released

In 1985, analytical results indicated that the oil in Transformers 515 and 516 contained less than 50 ppm PCBs. In October or November of 1985, and again in June, 1986, it was reported that the coolant oil in Transformers 515 and 516 contained 63 ppm and 65 ppm PCBs, respectively. Following a January 1986, inspection, approximately nine square feet of soil beneath a valve at the 515/516 Substation was found to be contaminated with PCB-contaminated oil. In November 1986, smear samples taken on the Transformer 515 drain valve and concrete pad indicated 3.3 ppm and 2.5 ppm PCBs, respectively. Additional records indicate that samples were collected in 1992 showing PCB contamination levels in the 515 and 516 Transformer dielectric oil to be 3 ppm and less than 1 ppm, respectively.

Oil containing between 50 and 500 ppm PCBs is believed to have been released to the environment at this site however, differentiation between the two transformers is vague in historical records (DOE, 1992).

Response to Operation or Occurrence

In January 1987, it was recommended that the concrete pad beneath Transformer 516 be coated with sealant. In 1986, the fluid in Transformers 515 and 516 was drained and replaced

with a non-PCB dielectric oil. Transformers 515 and 516 were scheduled for cleanup on August 13, 1989. No further documentation could be found detailing the response to this occurrence.

During a sitewide sampling program in August 1991, soil samples were collected in accordance with approved EPA sampling protocol and analyzed for PCBs using EPA Method 8080. The results indicated that PCB levels adjacent to the 515 and 516 transformers were less than 120 ppb and less than 26 ppm, respectively.

Under the approved *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls* (PAM) (DOE, 1995), additional sample screening was completed in 1995 to verify the lateral and vertical extent of PCB migration. Soil screening samples were analyzed using EPA Method 4020 and concrete samples were analyzed using EPA Method 8080. Approximately 6 cubic yards of PCB-contaminated soil were excavated from the east side of Transformer 516 in July, 1995, containerized, and shipped to an EPA licensed TSCA landfill in Kettleman, California for disposal.

Fate of Constituents Released to Environment

No further historical documentation could be found detailing the fate of constituents released to the environment.

Action/No Action Recommendation

Based on the 1995 final cleanup analytical results, PCB concentrations in the soil were less than 10 ppm using EPA Method 4020 and less than 934 ppb using EPA Method 8080. Split samples were analyzed using EPA Method 8080 to provide confirmation of the EPA Method 4020 (Immunoassay Field Technique) analytical results. PCB concentrations for the concrete samples were less than 860 ppb. Thus, the 25 ppm PCB cleanup level (DOE, 1995) has been achieved at this PAC and no further action is warranted.

Comments

In accordance with the PAM (DOE, 1995), a project completion report will be prepared and submitted in 1996 to document field activities and analytical results.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

PAC REFERENCE NUMBER(S): 500-901 & 905

IHSS Reference Number: Not Applicable

Unit Name: Substation 555/558 Transformer Leak

Approximate Location: N749,500; E2,083,000

Date(s) of Operation or Occurrence

Prior to June 1986

Description of Operation or Occurrence

In June 1986, during routine maintenance, Transformer 555 was reported to have been leaking dielectric coolant oil. The transformer was again reported as leaking in September 1986. Transformer 555 is one of two large transformers making up the 555/558 electrical substation located near the intersection of Seventh Street and Central Avenue. Transformer 558 is located on the north side of a switchgear building connecting the two transformers. Soil contaminated with PCBs was identified in a confined area east of the 558 transformer concrete pad during a sitewide sampling program in August 1991 (DOE, 1992).

Physical/Chemical Description of Constituents Released

As presented in the *Historical Release Report for the Rocky Flats Plant* (DOE, 1992), historical records indicate that Transformer 555 contained dielectric oil with 55 ppm PCBs. Smear samples collected prior to 1986, from the transformer valve and adjacent areas on the unit confirmed that small quantities (up to 6.2 ppm) of PCBs were released to the environment. No documentation was identified for sampling of the dielectric oil or surrounding area at the 558 transformer site (PAC 500-905) prior to August 1991.

Soil samples collected in August 1991, and again in April 1992, showed that PCB contamination existed primarily in one area of the substation immediately west of the 558 transformer pad. PCB levels of 480 ppm were identified at this discrete location. Samples collected from soils adjacent to Transformer 555 (PAC 500-901) showed PCB levels of 4.0 ppm.

Response to Operation or Occurrence

In 1986, the 555 transformer was retrofilled with a non-PCB dielectric oil and re-energized. No documentation was found that confirms that transformer 558 was also retrofilled; however, one reference indicates that a schedule was initiated for cleanup to take place at the substation on August 21, 1989 (DOE, 1992). No cleanup was performed at that time.

Under the approved *Final Proposed Action Memorandum for Remediation of Polychlorinated*

Biphenyls (PAM) (DOE, 1995), follow-up sample screening was completed in July of 1995 using Midwest Research Institute (MRI) methods to verify the lateral and vertical extent of PCB migration. Approximately 5 cubic yards of PCB-contaminated soil was excavated immediately west of the 558 transformer pad. The soil was containerized and shipped to an EPA licensed TSCA landfill in Kettleman, California for disposal.

Fate of Constituents Released to Environment

Analytical data indicate that PCB-contaminated soils at the 551/558 substation were located and characterized both surficially and at depth followed by an aggressive remediation schedule in July 1995. Approximately 5 cubic yards of soil were excavated and shipped offsite to an EPA licensed TSCA landfill.

Action/No Action Recommendation

PCB levels remaining in the soil following excavation were less than 10 ppm using EPA Method 4020 (Immunoassay Field Technique) and less than 1.3 ppm using EPA Method 8080. Split samples were analyzed using EPA Method 8080 to provide confirmation of the Method 4020 Immunoassay Field Technique. Thus, the 25 ppm PCB cleanup level (DOE, 1995) has been achieved for PAC 500-905 and no further action is warranted.

Analytical data from samples collected in 1991 and 1992 using EPA Method 8080 verify that PAC 500-901 (Transformer 555) had PCB-contaminated soil below 4.0 ppm (well below the 25 ppm cleanup standard) and therefore this PAC does not warrant further investigation.

Comments

Samples collected from the concrete pads underlying the 555/558 transformers were analyzed for PCBs using EPA Method 8080; the highest result was 0.43 ppm.

The excavation site was not backfilled due to further plans to demolish the substation building once the remediation was complete. As of July 10, 1996, under an electrical upgrade construction schedule at 65 percent completion, the 555/558 substation was demolished and replaced with a more modern facility. The transformers were shipped by rail to a licensed offsite facility for incineration.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

PAC REFERENCE NUMBER: 500-902

IHSS Reference Number: Not Applicable

Unit Name: Transformer Leak - 559

Approximate Location: N750,000; E2,084,500

Date(s) of Operation or Occurrence:

Prior to 1987

Description of Operation or Occurrence

Transformer 559-1 is located on the east side of Building 559. This transformer leaked oil containing PCBs from a faulty valve prior to relocation and retrofilling in 1987 (DOE, 1992).

Physical/Chemical Description of Constituents Released

Transformer 559-1 contained 235 gallons of dielectric cooling fluid. In October and November 1985, it was reported that Transformer 559-1 contained PCB fluid exclusively (PCB >500 ppm). In March 1989, it was reported that Transformer 559-1 contained fluid with 500,000 ppm PCBs (DOE, 1992).

Response to Operation or Occurrence

As presented in the *Historical Release Report for the Rocky Flats Plant* (DOE, 1992), in October 1986, Transformer 559-1 was scheduled for cleaning at the drain valve and at the case near the drain valve. In 1987, the transformer was retrofilled and relocated to a new concrete pad several feet to the south of its previous location. Concrete material was removed from the previous transformer location. In March 1989, it was reported that Transformer 559-1 was replaced under the Environmental Hazards Elimination Project. No historical documentation was found that details further response to this occurrence.

During a sitewide sampling program in August 1991, soil samples were collected in accordance with approved EPA sampling protocol and analyzed for PCBs using EPA Method 8080. Based on 1991 analytical results, the highest PCB concentration found adjacent to the old concrete transformer pad was 190 ppm.

Under the approved *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls* (PAM) (DOE, 1995), additional sample screening was completed in 1995 to verify the lateral and vertical extent of PCB migration. Soil samples were analyzed using EPA Method 4020 and concrete samples were analyzed using EPA Method 8080.

In accordance with the PAM (DOE, 1995), approximately 25 cubic yards of PCB-contaminated soil was excavated in October, 1995, containerized, and shipped to an EPA licensed TSCA landfill in Kettleman, California for disposal.

Fate of Constituents Released to Environment

No historical documentation was found that detailed the disposition of the concrete removed from the transformer pad or the fate of constituents released to the environment.

Action/No Action Recommendation

Based on the 1995 final cleanup analytical results, PCB contamination levels in the soil were less than 10 ppm using EPA Method 4020 and less than 2.4 ppm using EPA Method 8080. Split samples were analyzed using EPA Method 8080 to provide confirmation of the EPA Method 4020 (Immunoassay Field Technique) analytical results. PCB contamination levels on the concrete transformer pad are less than 41 ppb using EPA Method 8080. Thus, the 25 ppm PCB cleanup level (DOE, 1995) has been achieved at this PAC and no further action is warranted.

Comments

In accordance with the PAM (DOE, 1995), a project completion report will be prepared and submitted in 1996 to document field activities and analytical results.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

PAC REFERENCE NUMBER: 600-1000

IHSS Reference Number: Not Applicable

Unit Name: Transformer Storage Outside Building 662

Approximate Location: N748,900; E2,083,500

Date(s) of Operation or Occurrence:

Prior to August 1982, and through August 1986

Description of Operation or Occurrence

The first indication of transformer storage outside Building 662 is a photograph dated August 1982. There were approximately 10, pole-mounted transformers located on the east side of the building (DOE, 1992).

From June to October 1983, a large PCB transformer was stored in a catch basin outside Building 662. On October 13, 1983, the transformer was shipped offsite for disposal. Neither the condition of the transformer, nor the PCB content of the oil are known. It is also unknown whether storage in the catch basin was normal procedure, or if it was a unique occurrence.

During an inspection on January 30, 1986, the EPA audited the electrical yard outside of Building 662 and found 28, pole-mounted transformers being stored for reuse. One of the transformer was found to be leaking at that time. The PCB content of the leaking oil was then unknown, but was later determined to contain greater than 500 ppm PCBs. Documentation of the inspection indicates that ten of the 28 transformers were awaiting disposal rather than reuse, because of their age or condition (DOE, 1992).

Physical/Chemical Description of Constituents Released

Dielectric cooling oil that contained greater than 500 ppm PCBs leaked from the transformer found during the 1986 inspection. Other past activities occurring in the electrical yard from storage and repair practices are suspected to have contributed to contamination of soils adjacent to the east side of Building 662.

Response to Operation or Occurrence

Subsequent to the discovery of the leaking transformer in 1986, it was stated that if the analysis of the oil indicated that the transformer contained PCBs, it would be disposed of as PCB waste and the soil and pad would be cleaned up. No documentation was found detailing actual cleanup activities (DOE, 1992).

Under the approved *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls* (PAM) (DOE, 1995), additional sample screening was completed in 1996 to verify

the lateral and vertical extent of PCB migration. Approximately 270 soil samples were collected and analyzed using EPA Method 4020. Destructive concrete samples were collected and analyzed using EPA Method 8080.

In accordance with the PAM (DOE, 1995), approximately 86 cubic yards of PCB contaminated soil were excavated, containerized, and shipped to an EPA licensed TSCA landfill in Kettleman, California for disposal July, 1996.

Fate of Constituents Released to Environment

No historical documentation was found that detailed the fate of constituents released to the environment.

Action/No Action Recommendation

Based on the 1996 final cleanup verification analytical results, PCB contamination levels remaining in the soil were less than 10 ppm using EPA Method 4020. Results for the Method 8080 analysis will be available in August 1996. Split samples were analyzed using EPA Method 8080 to provide confirmation of the EPA Method 4020 (Immunoassay Field Technique) analytical results. PCB concentrations on the concrete pads east of Building 662 were less than 1.2 ppm using EPA Method 8080. Method 8080 analytical results confirm that the 25 ppm PCB cleanup level has been achieved at this PAC and therefore, no further action is warranted.

Comments

In accordance with the PAM (DOE, 1995), a project completion report will be prepared and submitted in 1996 to document field activities and analytical results.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

PAC REFERENCE NUMBER: 600-1002

IHSS Reference Number: Not Applicable

Unit Name: Transformer Storage - West of Building 666

Approximate Location: N748,500; E2,083,000

Date(s) of Operation or Occurrence:

Unknown

Description of Operation or Occurrence

Unused and unusable transformers were stored and dismantled for spare parts on a concrete pad west of Building 666. It is suspected that transformers were also stored inside of Building 666 within secondary containment basins (DOE, 1992). Leaks and spills of transformer oil may have occurred at this site according to plant employees (DOE, 1992).

Physical/Chemical Description of Constituents Released

PCBs are the potential constituents of concern at this location; however, radionuclides (Plutonium-239) were also present in soil samples collected in July, 1991. Plutonium of unknown origin was detected at levels up to 9.057 picoCuries per gram.

Response to Operation or Occurrence

No historical documentation was found which detailed a response to spills or releases prior to 1991. Transformer storage no longer occurs at this site; however the building is still used as a primary TSCA waste storage facility. During a sitewide sampling program in August 1991, soil samples were collected in accordance with approved EPA sampling protocol and analyzed for PCBs using EPA Method 8080.

Fate of Constituents Released to Environment

No additional historical documentation could be found which identifies the fate of constituents released to the environment.

Action/No Action Recommendation

Based on the confirmation analytical results, the highest PCB contamination level remaining in the soil adjacent to the concrete transformer pad was 1.6 ppm. This value is well below the 25 ppm PCB cleanup level established for RFETS (DOE, 1995). Radiological parameters identified (Plutonium-239, 9.057 pCi/g) are well below the proposed Tier II action levels for radionuclides in soils (DOE, 1996) and therefore no further action is warranted for this PAC.

Comments

None.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

DOE, 1996, *Action Levels for Radionuclides in Soils for the Rocky Flats Cleanup Agreement*, Draft, Rocky Flats Environmental Technology Site, Golden, CO, August.

PAC REFERENCE NUMBER: 600-1003

IHSS Reference Number: Not Applicable

Unit Name: Transformers North and South of 661/675 Substation

Approximate Location: N749,000; E2,083,000

Date(s) of Operation or Occurrence:

Unknown

Description of Operation or Occurrence

Evidence of a leaking valve was discovered on the north side of Transformer 661-1, which is located on the north side of the 661/675 Substation. The transformer is situated on a concrete pad, and is presently active. There is no berm around the transformer pad (DOE, 1992).

Another transformer is located on the south side of the 661/675 Substation, identified as Transformer 675-1. There is no evidence that the transformer is leaking or has leaked in the past; however, it is possible that leakage has occurred. The transformer is situated on a concrete pad, and is presently active. There is no berm around the transformer pad (DOE, 1992).

Physical/Chemical Description of Constituents Released

Based on analytical results from 1985, the PCB levels in the 661-1 and 675-1 transformer dielectric oil were 12 ppm and 5 ppm, respectively. The 1992 PCB results in the 661-1 and 675-1 transformer dielectric oil were 11 ppm and 5 ppm, respectively. Soil sampling in 1991 identified one location adjacent to the 661 transformer with 61 ppm PCBs.

Response to Operation or Occurrence

During a sitewide sampling program in August 1991, soil samples were collected in accordance with approved EPA sampling protocol and analyzed for PCBs using EPA Method 8080. Analytical results for PCBs in soil adjacent to the 661 and 675 transformers were 61 ppm and 4.1 ppm, respectively.

Under the approved *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls* (PAM) (DOE, 1995), additional sample screening was completed in 1995 to verify the lateral and vertical extent of PCB migration. Soil samples were screened using EPA Method 4020 and concrete samples were analyzed using EPA Method 8080.

In accordance with the PAM (DOE, 1995), approximately 47 cubic yards of PCB-contaminated soil were excavated in December 1995, containerized, and shipped to an EPA

licensed TSCA landfill in Kettleman, California for disposal.

Fate of Constituents Released to Environment

No historical documentation was found which detailed the fate of constituents released to the environment.

Action/No Action Recommendation

Final cleanup confirmation analytical results indicate that PCB contamination levels remaining in the soil are less than 10 ppm using EPA Method 4020 and less than 670 ppb using EPA Method 8080. PCB contamination levels on the concrete transformer pads are less than 86 ppb using EPA Method 8080. Based on these 1996 analytical results, the 25 ppm PCB cleanup level (DOE, 1995) has been achieved and no further action is warranted at this PAC.

Comments

In accordance with the PAM (DOE, 1995), a project completion report documents field activities and analytical results at this site.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

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PAC REFERENCE NUMBER: 700-1102

IHSS Reference Number: Not Applicable

Unit Name: Transformer Leak - 776-4

Approximate Location: N750,500; E2,083,500

Date(s) of Operation or Occurrence:

Prior to January 1986

Description of Operation or Occurrence

Prior to January 1986, Transformer 776-4 was located approximately 100 feet west of the northwest corner of Building 776 (Figure 2.11). The transformer pad at this location was positioned on an incline with drainage toward an access road 15 feet to the east. In January 1986, a plant employee reported that a leak was observed from Transformer 776-4. In February 1986, the transformer was again reported to be leaking on the radiator, around the gauges, valves, and bushing compartment. There was an oily film on most of the surfaces of the transformer and on the transformer pad. In an August 1986 photograph, staining was visible on the concrete pad beneath the transformer. Further leaking was reported in August and September 1986. Samples collected in November 1986 of the concrete under the transformer drain valve and of soil at the south edge of the transformer pad were found to be contaminated with PCBs (DOE 1992). The transformer was moved to a new pad several feet to the north in 1987 (DOE 1996b).

Physical/Chemical Description of Constituents Released

In September 1976, the oil in Transformer 776-4 had a PCB concentration of approximately 5 percent (using a PCB test kit). Samples of the oil collected in November 1977 indicate the fluid in the transformer had a PCB concentration of approximately 3 percent. In October 1985, the oil was reported to have a PCB concentration greater 500 ppm (test method unknown). In November 1986, wipe samples collected from a valve, sidewall, and the concrete pad were found to contain 29.8, 5.0, and 417.5 ppm PCBs, respectively. Also in November 1986, a wipe sample collected from the concrete pad beneath the drain valve was found to contain 498 micrograms per square centimeter ($\mu g/cm^2$) PCBs. Soil samples collected in November 1986 from the south edge of the original transformer pad indicated 14,900 ppm PCB contamination (DOE 1992).

Response to Operation or Occurrence

In September 1976, Transformer 776-4 was documented as being drained and refilled with a non-PCB silicone oil. The transformer was scheduled for replacement under the PCB Fire Hazard Elimination Project in FY1988.

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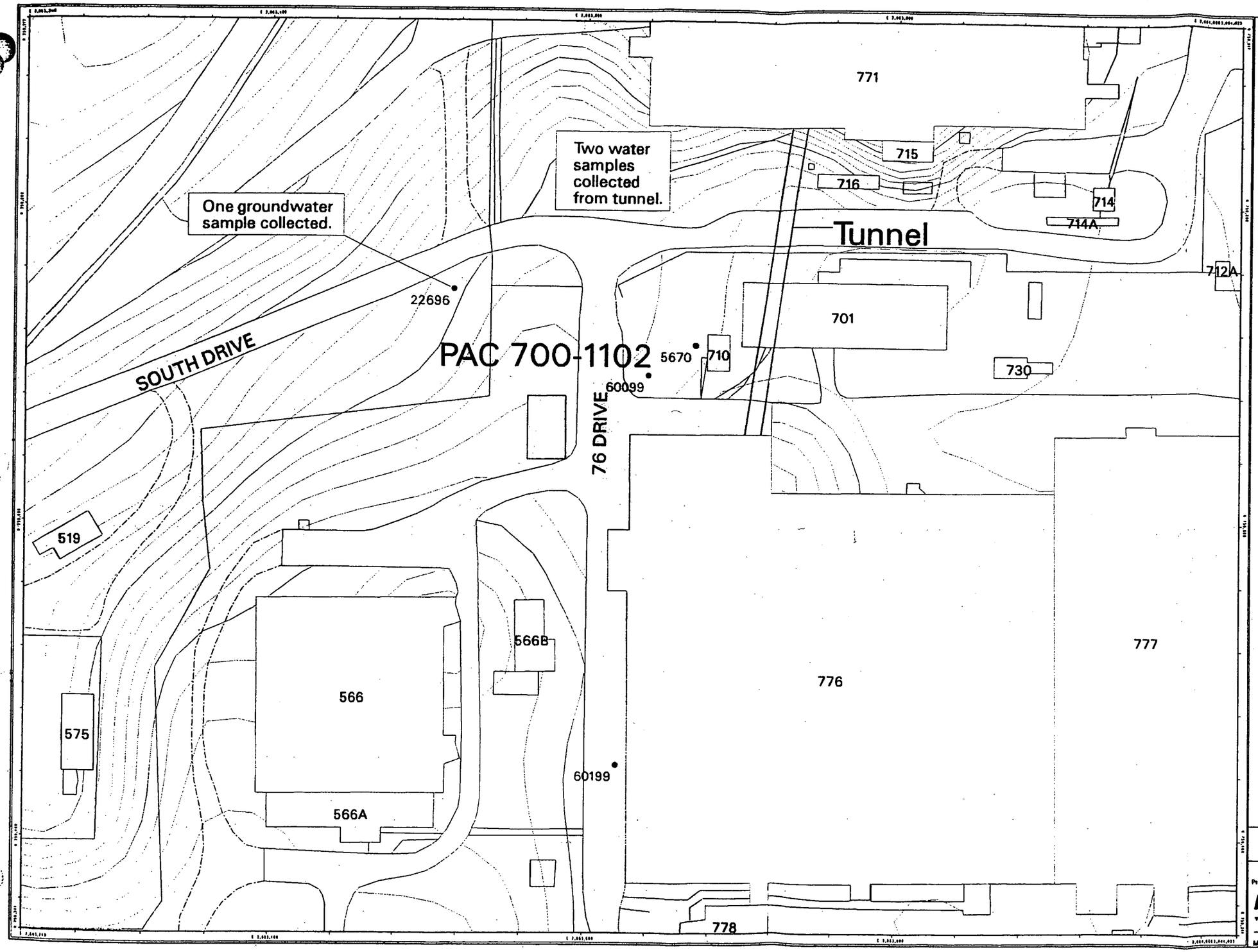

Figure 2.11

Historical Release Report

Potential Area of Concern

PAC 700-1102

EXPLANATION

- PAC 700-1102
- Tunnel
- Groundwater Well Location

Standard Map Features

- Buildings and other structures
- Paved roads fill
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences and other barriers
- Topographic Contour (2-Foot)
- Paved roads
- Dirt roads

DATA SOURCE BASE FEATURES:
Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas. Digitized from the orthophotographs. 1/95
Topographic contours were derived from digital elevation model (DEM) data by Morrison Knudsen (MK) using ESRI Arc TIN and LATTICE to process the DEM data to create 2-foot contours. The DEM data was captured by the Remote Sensing Lab, Las Vegas, NV, 1994 Aerial Flyover at ~ 10 meter resolution. DEM post-processing performed by MK, Winter 1997.
Data Source:
Groundwater Well data - Approved by Steve Slinger (RMRS, 303-966-3387).

NOTES:
All IHSS and PAC's Boundaries are Approximate. For more detail, please contact Nick Demos (X4605) for the following document:

Historical Releases Report (HRR) September 2001 Annual Update

N

Scale = 1 : 740
1 inch represents approximately 62 feet

20 0 40 80ft

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

GIS Dept. 303-966-7707

Prepared by: DynCorp — THE ART OF TECHNOLOGY

Prepared for: KAISER-HILL COMPANY

MAP ID: 01-0918/hrr-pac-700-1102 fig2-11.aml

September 18, 2001

NT_Svr h:/projects/fy2001/01-0918/hrr-pac-700-1102_fig2-11.aml

The transformer was removed for retrofilling and relocated several feet to the north in 1987. The original transformer pad surface was partially removed (scabbled) to a depth of 4 inches and left in place.

In March 1989, it was reported that transformer 776-4 was replaced under the Environmental Hazards Elimination Project. Further remediation of the site was scheduled on August 10, 1989 (DOE 1992).

During a sitewide sampling program in August 1991, soil samples were collected in accordance with agency-approved EPA sampling protocol and analyzed for PCBs using EPA Method 8080. The highest PCB concentration detected in soil collected adjacent to the old concrete transformer pad was 480 ppm (DOE 1996a).

Working under an agency-approved Final PAM for Remediation of Polychlorinated Biphenyls (DOE 1995), additional samples were collected in 1995 and 1996 to verify the lateral and vertical extent of PCB migration. Soil samples were analyzed using EPA Draft Method 4020, and concrete samples were analyzed using EPA Method 8080. Based upon analytical results for the concrete samples, the highest PCB contamination level on the concrete pad was 56 ppm. In accordance with the PAM (DOE, 1995), approximately 177 cubic yards (yd^3)of PCB-contaminated soil and 10.7 yd^3 of PCB-contaminated concrete were excavated to a depth of 17 feet, containerized, and shipped to an EPA licensed TSCA landfill in Kettleman, California, for disposal (DOE 1997). An area of soil approximately 20 square feet (ft^2), at a depth of 17 feet is PCB-contaminated at levels around 70 ppm using EPA Method 8080 as documented in the Closeout Report for the Source Removal of Polychlorinated Biphenyls (DOE 1997). The RFCA Tier I subsurface soil ALs for Aroclor-1260 is 3,820 ppm. Excavation was stopped due to health and safety concerns and equipment limitations.

This site was recommended for NFA in 1997; however, comments received from the regulatory agencies on July 19, 1999, conclude that additional groundwater samples should be collected to ensure that PCB contamination is not mobilized in the subsurface. Groundwater samples were collected for PCBs at two down-gradient locations during FY2001 from well 22696 and from the Building 771/776 tunnel (Figure 2.11). The underground tunnel connecting Buildings 776 and 771 is immediately east of PAC 700-1102 and approximately 23 feet in depth. Groundwater samples did not contain detectable concentrations of PCBs. Analytical results are presented in Table 2.21.

Fate of Constituents Released to Environment

No historical documentation was found that detailed the disposition of the scabbled concrete removed from the transformer pad (DOE 1992).

PAC 700-1102 was remediated from an initial PCB contaminant level of 480 ppm Aroclor-1260 in the soil to 70 ppm. Because the residual contamination is 17 feet below ground surface (bgs), the source removal significantly reduced risk to human health and the environment (DOE 1997).

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Table 2.22 - Summary of Groundwater Sample Results near PAC 700-1102

Potential Constituent of Concern	Number of Samples	Number of Detects (MDA 0.53 ug/L)	RFCA Regulatory Action Level Exceedances Groundwater (5 ug/L)
PCBs 771/776Tunnel[1]			
Aroclor 1216	2	0 (<0.5 ug/L)	0
Aroclor 1221	2	0 (<0.5 ug/L)	0
Aroclor 1232	2	0 (<0.5 ug/L)	0
Aroclor 1242	2	0 (<0.5 ug/L)	0
Aroclor 1248	2	0 (<0.5 ug/L)	0
Aroclor 1254	2	0 (<0.5 ug/L)	0
Aroclor 1260	2	0 (<0.5 ug/L)	0
PCBs (Well 22696			
Aroclor 1216	1	0 (<0.5 ug/L)	0
Aroclor 1221	1	0 (<0.5 ug/L)	0
Aroclor 1232	1	0 (<0.5 ug/L)	0
Aroclor 1242	1	0 (<0.5 ug/L)	0
Aroclor 1248	1	0 (<0.5 ug/L)	0
Aroclor 1254	1	0 (<0.5 ug/L)	0
Aroclor 1260	1	0 (<0.5 ug/L)	0

PCOC are chemicals/compounds detected above background concentrations presented in the Geochemical Characterization of Background Surface Soils, Background Soils Characterization Program (DOE 1995b).

EPA Method SW-846 8082 used for all groundwater samples, MDA = minimum detectable activity

Action/No Further Action Recommendation

PAC 700-1102 was recommended for NFA in 1997 based upon removal of the contaminant source. Comments received from the regulatory agencies on July 19, 1999 concluded that NFA of this PAC would be granted if downgradient groundwater samples were collected verifying that PCB contamination is not mobilized in the subsurface which could affect surface water.

During FY2001, groundwater sampling for PCBs was conducted at two downgradient locations. These locations are shown on Figure 2.11 as well 22696 and the Building 771/776 tunnel. Analytical data presented in Table 2.21 verify that PCB contamination is not mobilized in the subsurface. Based upon the additional data presented in this narrative, PAC 700-1102 is again proposed for NFA.

Comments

The excavation was filled with clean structural backfill in 1996.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, June.

DOE, 1995a, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

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DOE, 1995b, *Geochemical Characterization of Background Surface Soils, Background Soils Characterization Program*, Rocky Flats Environmental Technology Site, Golden, CO.

DOE, 1996a, *Annual Update for the Historical Release Report, August 1, 1995 through August 1, 1996*, RF/ER-96-0046, September.

DOE, 1996b, *Final Rocky Flats Cleanup Agreement*, Department of Energy, Rocky Flats Environmental Technology Site, Golden, CO., July.

DOE, 1997, *Closeout Report for the Source Removal of PCBs*, RF/RMRS-97-044, Revision 0, July.

RMRS, 1997, *Annual Update to the Historical Release Report*, Rocky Flats Environmental Technology Site, Golden, CO, September.

22

PAC REFERENCE NUMBER(S): 700-1103

IHSS Reference Number: Not Applicable

Unit Name: Leaking Transformers - Building 707

Approximate Location: N750,000; E2,084,000

Date(s) of Operation or Occurrence

November 1986

Description of Operation or Occurrence

Transformers 707-1 through 707-6 are located on the east side of the Building 707 roof. Concrete under several of the transformer drain valves was found to be contaminated with PCBs in November 1986 (DOE, 1992). A leak was discovered from Transformer 707-1 in 1987 during routine maintenance when the transformer was found to be low in dielectric coolant oil. Visible evidence of the leak was observed around the valve area and weld seams. Analytical data of soil and wipe samples confirmed the pad on the roof and soil on the ground immediately east of Building 707 were contaminated with PCBs. The soil contamination resulted from rainwater collecting on the rooftop where the transformers exist (DOE, 1992), then being released through a downspout to the ground.

Physical/Chemical Description of Constituents Released

Wipe samples collected from the concrete under several of the transformer drain valves were analyzed in November 1986. PCB concentrations were between 135 and 7,200 ppm. PCB contamination of the soil immediately under a downspout was detected at 1,600 ppm (DOE, 1992).

Response to Operation or Occurrence

In March 1991, surface soil samples were collected immediately east of Building 707 under a downspout suspected of being a migration pathway from the contaminated rooftop directly above. The analytical data from these soil samples indicated that, as suspected, contamination (1,600 ppm) was most evident under the downspout and decreased in concentration with distance outward from the building to approximately 9.7 ppm. Subsurface soil samples collected at depths between 1.0 and 1.5 feet in the same locations measured 180 ppm and <1.0 ppm, respectively.

In 1992, an extensive TSCA cleanup of PCB contamination on the 707 rooftop was performed that included the removal of the leaking 707-1 transformer, considerable wipe sampling of the concrete rooftop to achieve a cleanup standard of 100 mg/100 cm (as required by EPA), and subsequent replacement of the repaired transformer. The 707-1 transformer was retrofilled

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with a non-PCB dielectric oil and re-energized. Remediation of the soil was scheduled for cleanup under the IAG.

Under the approved *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls* (PAM) (DOE, 1995), further sample screening was completed in July and August of 1995 using Midwest Research Institute (MRI) methods (EPA 1986) to verify the lateral and vertical extent of PCB migration. Approximately 67 cubic yards of PCB-contaminated soil was excavated from the site. The soil was containerized, and shipped to an EPA licensed TSCA landfill in Kettleman California for disposal in September 1995.

Fate of Constituents Released to Environment

The extensive soil sampling that took place in March 1991 and August 1995 prove that PCB-contaminated rainwater from the Building 707 rooftop did not migrate to an existing storm drain over 100 ft. down gradient.

Action/No Action Recommendation

PCB levels remaining in the soil were less than 10 ppm using EPA Method 4020 (Immunoassay Field Technique) and less than 12 ppm (5 ppm Aroclor 1260, 7 ppm Aroclor 1254) using EPA Method 8080. Split samples were analyzed using EPA Method 8080 to provide confirmation of the Method 4020 Immunoassay Field Technique. Based on these analytical results (September 1995), the 25 ppm PCB cleanup level (DOE, 1995) has been achieved for PAC 700-1103 and therefore no further action is warranted. Analytical data confirming the remediation of this PAC are documented in the project completion report.

Comments

The excavation site was backfilled and re-graded upon receipt of Method 8080 cleanup confirmation samples in August 1995.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

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PAC REFERENCE NUMBER: 700-1104

IHSS Reference Number: Not Applicable

Unit Name: Leaking Transformer - Building 708

Approximate Location: N750,000; E2,084,000

Date(s) of Operation or Occurrence:

November 1986 through 1987

Description of Operation or Occurrence

Transformer 708-1 is located on the west side of Building 708. In February 1987, concrete under the 708-1 transformer drain valve was found to be contaminated with PCBs. According to an interview with EG&G Utilities personnel, electrical equipment located west of Building 708 leaked PCB-contaminated oil prior to 1987 (DOE, 1992).

Physical/Chemical Description of Constituents Released

Wipe samples collected from the concrete under the 708-1 transformer drain valve were analyzed and found to contain 1,035 g and 3,750 g of PCBs (DOE, 1992). Soil samples collected in August 1991 showed PCB contamination around the 708-1 concrete pad to be 860 ppm.

Response to Operation or Occurrence

Four transformers were removed and retrofilled from this site in 1987. Rock and gravel fill were placed around the transformer pads prior to replacement of non PCB transformers in 1987 or 1988. No historical documentation was found that further details response to this occurrence (DOE, 1992).

During a sitewide sampling program in August 1991, soil samples were collected in accordance with approved EPA sampling protocol and analyzed for PCBs using EPA Method 8080. The highest PCB concentration found in soil samples collected adjacent to the concrete transformer pads was 860 ppm.

Under the approved *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls* (PAM) (DOE, 1995), additional sample screening was completed in 1995 to verify the lateral and vertical extent of PCB migration. Soil samples were analyzed using EPA Method 4020. In accordance with the PAM (DOE, 1995), approximately 21 cubic yards of PCB-contaminated soil was excavated, containerized, and shipped to an EPA licensed TSCA landfill in Kettleman, California for disposal.

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Fate of Constituents Released to Environment

No historical documentation was found which detailed the fate of constituents released to the environment.

Action/No Action Recommendation

The 1995 final cleanup verification analytical results for PCBs in the soil were less than 10 ppm using EPA Method 4020 and less than 3.2 ppm using EPA Method 8080. Split samples were analyzed using EPA Method 8080 to provide confirmation of the EPA Method 4020 (Immunoassay Field Technique) analytical results. These results are well below the 25 ppm PCB cleanup level (DOE, 1995); therefore, this PAC does not warrant further investigation. There were no detections of PCBs on the concrete transformer pad using EPA Method 8080.

Comments

In accordance with the PAM (DOE, 1995), a project completion report documents field activities and analytical results for this site.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

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PAC REFERENCE NUMBER: 700-1111

IHSS Reference Number: Not Applicable

Unit Name: Leaking Transformer - Building 750

Approximate Location: N750,000; E2,084,500

Date(s) of Operation or Occurrence:

Prior to 1987

Description of Operation or Occurrence

Transformer 750-1 is located on the northeast side of Building 750, approximately 80 feet from a cafeteria entrance. As presented in the *Historical Release Report for the Rocky Flats Plant* (DOE, 1992), in August 1985, Transformer 750-1 was reported as a potential PCB "exposure risk to food or feed." The exposure risk was related to a small crack in the berm surrounding the transformer and the proximity of the transformer to the cafeteria entrance. According to interviews with Utilities personnel, prior to 1987 this transformer leaked dielectric fluid containing PCBs.

Physical/Chemical Description of Constituents Released

It was reported that Transformer 750-1 contained 465 gallons of PCB fluid weighing 2,533 kilograms. In October 1985, it was reported that Transformer 750-1 contained PCB fluid exclusively. Soil samples collected in August 1991, show that PCB contamination of 160 ppm was released from the transformer (DOE, 1992).

Response to Operation or Occurrence

In August 1985, it was recommended that the concrete berm surrounding the transformer be sealed. In January 1986, it was anticipated that Transformer 750-1 would be removed and replaced under the Fiscal Year 1986 Environmental Hazards Elimination Project. In 1987, the transformer was retrofilled and relocated to a new concrete pad several feet to the east of its previous location (DOE, 1992).

During a sitewide sampling program in August 1991, soil samples were collected in accordance with approved EPA sampling protocol and analyzed for PCBs using EPA Method 8080. The highest PCB concentration detected in soil samples collected adjacent to the old concrete transformer pad was 160 ppm.

Under the approved *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls* (PAM) (DOE, 1995), additional sample screening was completed in 1995 to verify the lateral and vertical extent of PCB migration. Soil samples were analyzed using EPA

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Method 4020 and concrete samples were analyzed using EPA Method 8080.

In accordance with the PAM (DOE, 1995), approximately 26 cubic yards of PCB-contaminated soil were excavated, containerized, and shipped to an EPA licensed TSCA landfill in Kettleman, California for disposal.

Fate of Constituents Released to Environment

No historical documentation was found that detailed the fate of constituents released to the environment.

Action/No Action Recommendation

The 1995 final cleanup verification analytical results for PCBs in the soil were less than 10 ppm using EPA Method 4020 and less than 5.9 ppm using EPA Method 8080. Split samples were analyzed using EPA Method 8080 to provide confirmation of the EPA Method 4020 (Immunoassay Field Technique) analytical results. There were no detections of PCBs on the concrete transformer pad using EPA Method 8080. The 25 ppm PCB cleanup level (DOE, 1995) has been achieved at this PAC; therefore, no further action is warranted.

Comments

In accordance with the PAM, a project completion report documents field activities and analytical results for this site.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

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PAC REFERENCE NUMBER: 700-1112

IHSS Reference Number: Not Applicable

Unit Name: Leaking Transformer - Building 776-5

Approximate Location: N750,000; E2,084,500

Date(s) of Operation or Occurrence:

June 1986 to August 1989

Description of Operation or Occurrence

Transformer 776-5 is located on the west side of Building 714 within the Protected Area. The 1500 KVA transformer was manufactured in 1969 and was reported as leaking coolant oil in June, 1986 (DOE, 1992).

Physical/Chemical Description of Constituents Released

The 308 gallons of dielectric fluid in Transformer 776-5 contained 807 ppm PCBs at one point prior to 1989 (DOE, 1992). Soil sampling in August 1991, show PCB contamination to be 88 ppb.

Response to Operation or Occurrence

Transformer 776-5 was scheduled for cleanup on August 12, 1989. No documentation could be found to verify what cleanup was performed at this site if any.

During a sitewide sampling program in August 1991, soil samples were collected in accordance with approved EPA sampling protocol and analyzed for PCBs using EPA Method 8080. The highest PCB detection in soil samples collected adjacent to the concrete transformer pad was 88 ppb.

Fate of Constituents Released to Environment

No historical documentation was found that detailed the fate of constituents released to the environment if any.

Action/No Action Recommendation

This PAC does not warrant further investigation based on the 1991 PCB result of less than 88 ppb; this value is well below the 25 ppm (or 25,000 ppb) PCB cleanup level for RFETS (DOE, 1995).

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Comments

Transformer 776-5 is also referred to as transformer 714-1 and 771-3 in older documents due to its proximity to Buildings 714 and 771. However, Transformer 714-1 is located 70 feet to the south of Building 771 on a concrete pad (DOE, 1992).

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

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PAC REFERENCE NUMBER: 800-1207

IHSS Reference Number: Not Applicable

Unit Name: Transformer 883-4

Approximate Location: N749,000; E2,084,000

Date(s) of Operation or Occurrence

1985 through 1987 or 1988

Description of Operation or Occurrence

Transformer 883-4 is located at the southeast corner of Building 883. Utilities reported that it may have leaked prior to being drained and refilled with non PCB dielectric oil in either 1986 or 1987. The original pad was partially removed and the top scarified to make room for a new pad that was constructed several feet to the west. After retro-filling, the transformer was relocated to the new pad. Documentation could not be found that details when these activities took place. The transformer was found to be leaking during an inspection on November 7, 1985. Leakage was also found on January 30, 1986, during an EPA inspection for compliance with TSCA. This transformer was on the list for cleanup and/or repair on February 11, 1986, because of leakage around the top and bottom valves and oil on the surface of the concrete pad and transformer wall (DOE, 1992).

Physical/Chemical Description of Constituents Released

Historical records indicate that Transformer 883-4 contained dielectric oil with greater than 500 ppm PCBs prior to 1986 (DOE, 1992); however, another document indicates that the transformer oil was sampled in 1992 and found to contain 6 ppm PCBs. No documentation could be found as to whether smear samples were ever collected at this location (DOE, 1992).

Response to Operation or Occurrence

Although this site was not directly audited by an EPA representative in 1986, it was required that the transformer be removed or replaced by Fiscal Year 1987 or 1988 (DOE, 1992). The 883-4 transformer was retrofilled with a non-PCB dielectric oil and re-energized on a new foundation several feet to the west prior to or during Fiscal Year 1988. No documentation was found confirming that a cleanup schedule for the surrounding soil was initiated at that time.

Soil samples collected during a sitewide sampling program in August 1991, showed that PCB contamination existed in the soils surrounding the old transformer pad. PCB concentrations were identified at 160 ppm in one location and 12 ppm in another location (adjacent to the transformer pad).

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Under the approved *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls* (PAM) (DOE, 1995), further sampling was completed in July and August of 1995 using Midwest Research Institute (MRI) methods (EPA 1986) to verify the lateral and vertical extent of PCB migration. Approximately 28 cubic yards of PCB-contaminated soil were excavated from the old transformer site. The soil was containerized and shipped to an EPA licensed TSCA landfill in Kettleman, California for disposal

Fate of Constituents Released to Environment

Analytical data show that PCB-contaminated soils at the old 883-4 transformer site were located and characterized both surficially and at depth. Characterization was followed by remediation in late July and early August of 1995.

Action/No Action Recommendation

PCB levels remaining in the soil following the 1995 excavation were less than 10 ppm using EPA Method 4020 (Immunoassay Field Technique) and less than 3.1 ppm using EPA Method 8080. Split samples were analyzed using EPA Method 8080 to provide confirmation of the Method 4020 Immunoassay Field Technique. Destructive concrete samples were collected from the old pad using an impact drill and analyzed using EPA Method 8080. Analytical results from the concrete sampling were below 2.5 ppm PCBs and the old pad was disposed of in the onsite landfill. Based upon analytical results (July - August 1995), the 25 ppm PCB cleanup level (DOE, 1995) has been achieved for PAC 800-1207 and therefore this PAC does not warrant further investigation. Analytical data confirming the successful remediation of this PAC is documented in the project completion report as specified in the approved PAM.

Comments

The excavation site was backfilled and resurfaced with asphalt upon receipt of Method 8080 cleanup confirmation samples in August 1995.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

EPA, 1986, *Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup*, Office of Toxic Substances, EPA-560/5-86-017, Washington, D.C., May.

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PAC REFERENCE NUMBER: 800-1208

IHSS Reference Number: Not Applicable

Unit Name: Transformer 881-4

Approximate Location: N749,000; E2,084,000

Date(s) of Operation or Occurrence:

Unknown - 1987

Description of Operation or Occurrence

Transformer 881-4 is located on the north side of Building 881. Utilities personnel reported that the transformer may have leaked prior to being retrofilled in September of 1986. Visual inspection of the transformer on February 11, 1986, revealed a leak on the top and bottom valves, tap changer, and pad. Another document indicates that residual stains existed on the concrete pad in January 1987 (DOE, 1992).

Presently, the transformer is located in a gravel filled berm with no indication of leakage. The previously mentioned concrete may exist beneath the gravel. There are no drains in the vicinity.

Physical/Chemical Description of Constituents Released

Transformer 881-4 contained 435 gallons of dielectric coolant oil while in service. Historical records indicate that the oil contained 110 ppm PCBs prior to being retrofilled.

Response to Operation or Occurrence

The transformer oil was drained and replaced with non-PCB dielectric oil in September of 1986.

During a sitewide sampling program in August 1991, soil samples were collected in accordance with approved EPA sampling protocol and analyzed for PCBs using EPA Method 8080. Based on 1991 analytical results, PCB contamination levels are less than 4.5 ppm in the soil.

Fate of Constituents Released to Environment

No historical documentation was found that detailed the fate of constituents released to the environment.

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Action/No Action Recommendation

This PAC does not warrant further investigation based on 1991 analytical data indicating that PCB contamination levels are less than 4.5 ppm, which is well below the 25 ppm cleanup level established for RFETS (DOE, 1995).

Comments

Transformer 881-4 is currently out of service.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

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PAC REFERENCE NUMBER: 800-1209

IHSS Reference Number: Not Applicable

Unit Name: Leaking Transformers, 800 Area

Approximate Location: N749,000; E2,084,000

Date(s) of Operation or Occurrence:

Unknown - 1991

Description of Operation or Occurrence

Three active transformers (883-1, 883-2, 883-3) and a switchgear apparatus are located on the north side of Building 883. Utilities personnel reported that all components within this complex may have leaked prior to being retrofilled in 1987. Oil stains were visible at the valve on one of the transformers (DOE, 1992). The area is bermed, with rock and gravel placed inside and outside of the berm. There are no drains at this site.

Physical/Chemical Description of Constituents Released

Utilities personnel suspected that PCBs may have leaked at this site (DOE, 1992).

The 1985 analytical results for PCBs in the oil for transformers 883-1, 883-2, and 883-3 were 84 ppm, 42 ppm, and 17 ppm, respectively. Based on 1992 analytical results, the PCB contamination levels in the oil for transformers 883-1, 883-2, and 883-3 were 3 ppm, 35 ppm, and 16 ppm, respectively after being retrofilled in 1987.

Response to Operation or Occurrence

The transformers were retrofilled with non-PCB dielectric coolant oil in 1987 as part of a plant-wide compliance schedule driven by TSCA.

During a sitewide sampling program in August 1991, soil samples were collected in the vicinity of these transformers in accordance with approved EPA sampling protocol and analyzed for PCBs using EPA Method 8080. Based on 1991 analytical results, PCB contamination levels in the soil were below 6.8 ppm.

Fate of Constituents Released to Environment

No historical documentation was found that detailed the fate of constituents released to the environment.

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Action/No Action Recommendation

This PAC does not warrant further investigation based on 1991 analytical data. Method 8080 PCB analytical levels are less than 6.8 ppm in the soil, which is well below the 25 ppm cleanup level established for RFETS (DOE, 1995).

Comments

None.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

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PAC REFERENCE NUMBER: 900-1306

IHSS Reference Number: Not Applicable

Unit Name: Transformers 991-1 and 991-2

Approximate Location: N748,000; E2,085,500

Date(s) of Operation or Occurrence:

Prior to February, 1986

Description of Operation or Occurrence

In February 1986, several leaks were observed on pipe flanges, valves, gauges, and bushing compartments of Transformers 991-1 and 991-2. Large amounts of oil were noted on the ground under the two transformers (DOE, 1992).

Physical/Chemical Description of Constituents Released

The oil in Transformers 991-1 and 991-2 contained PCBs at concentrations of 114 ppm and 60 ppm, respectively (DOE, 1992).

Response to Operation or Occurrence

The PCBs were cleaned up and the transformers repaired in February 1986, according to one reference document in the HRR (DOE, 1992). It is not clear whether the clean-up involved soil.

During a sitewide sampling program in August 1991, soil samples were collected in accordance with approved EPA sampling protocol and analyzed for PCBs using EPA Method 8080. The highest PCB detection in soil samples collected adjacent to the concrete transformer pads was 510 ppb.

Fate of Constituents Released to Environment

No historical documentation was found that detailed the fate of constituents released to the environment.

Action/No Action Recommendation

This PAC does not warrant further investigation based on 1991 analytical data indicating that PCB contamination levels are less than 510 ppb, which is well below the 25 ppm cleanup standard established for RFETS (DOE, 1995).

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Comments

None.

References

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, August.

DOE, 1995, *Final Proposed Action Memorandum for Remediation of Polychlorinated Biphenyls*, RF/ER-95-0066.UN, Rocky Flats Environmental Technology Site, Golden, CO, July.

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THIS TARGET SHEET REPRESENTS AN
OVER-SIZED MAP / PLATE FOR THIS DOCUMENT:

No Further Accelerated Action Justification for Polychlorinated Biphenyl (PCB) Potential Areas of Concern (PAC) Sites

April 15, 2004

PCB Sites Existing Sample Locations

File: W:\Projects\Fy2004\transformer\transformer.apr

March 24, 2004

CERCLA Administrative Record Document, IA-A-002522

U.S. DEPARTEMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

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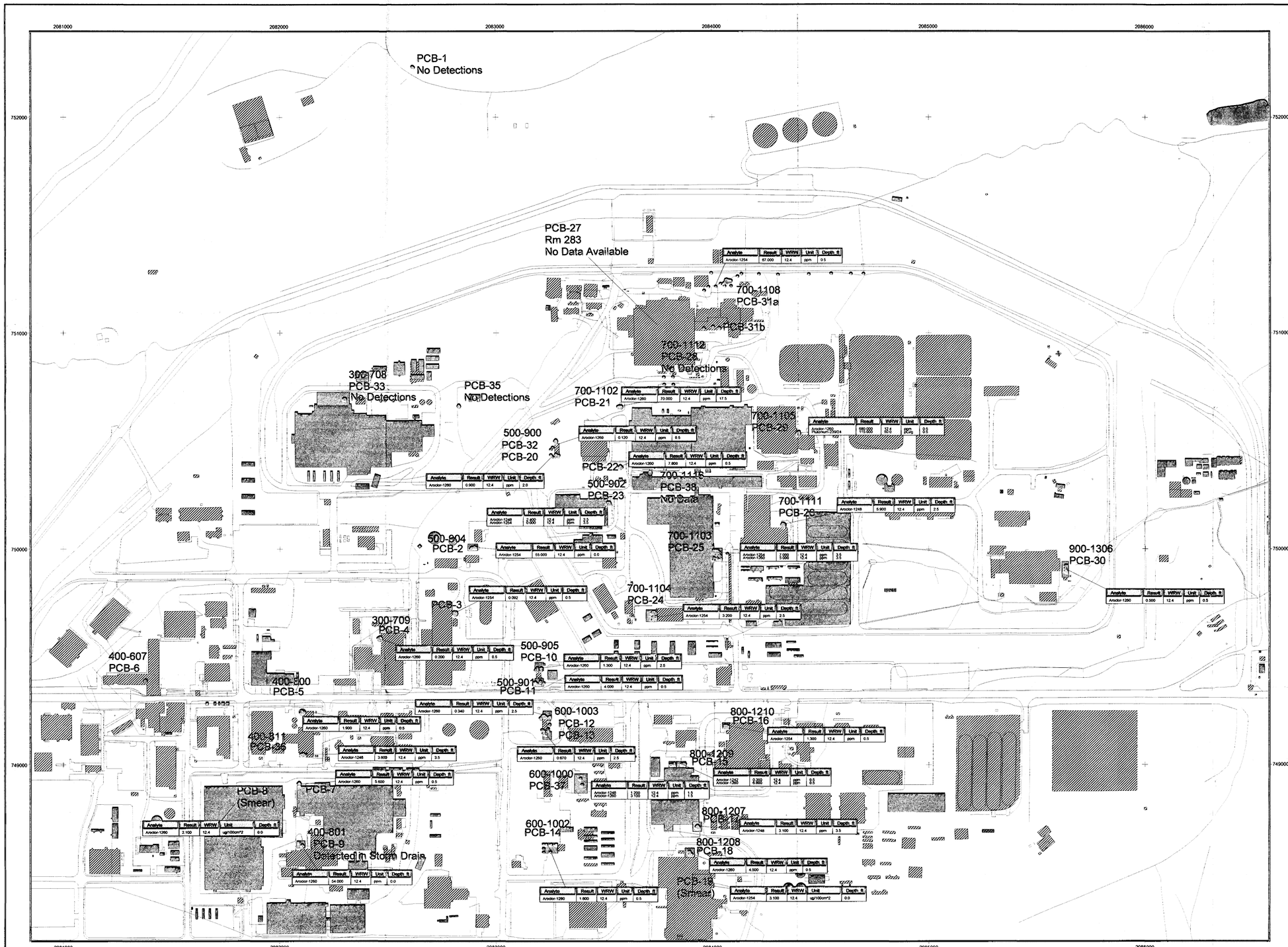

PCB Sites Existing Sample Locations

Labels

>AL (12.4 ppm)

Site Remediated (<AL, 12.4 ppm)

Not Remediated

Key

- Standing Building
- Demolished Building
- Paved Roads
- PCB Sample Locations
- Streams
- PAC
- Lakes

700-1105 PAC Designation
PCB-29 TSCA Location Number

Note: Not all PCB sites are PACs

Table shows highest concentration
(Aroclors in ppm or ug/100cm^2,
Plutonium in pCi/g)

N
W E
S

Scale = 1: 2550

350 0 350 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: Date: 03.24.04

RADMS

Prepared for:

KAISER-HILL COMPANY

File: W:\Projects\Fy2004\transformer\transformer.apr